

What is claimed is:

1. A method for inhibiting the corrosion-causing tendency and coloration of halogen-containing olefin polymers or copolymers, comprising incorporating about 0.01% to about 1% of a solid solution having the formula $\text{Al}_2(\text{Mg})_a(\text{OH})_b(\text{CO}_3)_c(\text{G})_d \cdot e\text{H}_2\text{O}$ and a crystallite size in the $\langle 003 \rangle$ direction of about 190 Å to about 225 Å, and having bidentate coordination for carbonate ion as shown by an infrared spectrum, and wherein $3 \leq a \leq 5.5$; $8 \leq b \leq 14$; $1.2 \leq c \leq 3$; $0 \leq d \leq 1$; $1 \leq e \leq 10$ and G is a surface active agent into an olefin polymer or copolymer.

2 The method according to claim 1, wherein G of the solid solutions is a metal salt of a C_{10} - C_{22} saturated fatty acid.

3 The method according to claim 2, wherein said metal salt of a C_{10} - C_{22} saturated fatty acid is selected from the group consisting of the sodium stearate, zinc stearate and calcium stearate.

4 The method according to claim 1 wherein the solid solution has having an infrared spectrum that displays a split absorption band in the region of $1415\text{-}1480\text{ cm}^{-1}$.

5 The method according to claim 1 wherein the solid solution has a tap density of about 0.1 g/cc to about 0.3 g/cc.

6 The method according to claim 1 wherein the solution sold has a BET specific surface area of about $25\text{ m}^2/\text{g}$ to about $40\text{ m}^2/\text{g}$.

7. A solid solution for inhibiting the corrosion-causing tendency and coloration of halogen-containing olefin polymers or copolymers formed by a process comprising the steps:

(a) heating an aqueous slurry comprising an aluminum compound selected from the group consisting of basic aluminum carbonate gel and aluminum hydroxide, and a magnesium compound selected from the group consisting of basic hydrated magnesium carbonate and magnesium oxide, wherein the molar ratio of magnesium to aluminum is about 1.5 to 2.75, to a temperature of about 70 °C to about 95 °C and for a reaction time "X" to provide a first slurry, where "X" is a period of time sufficient to achieve removal of substantially all free and loosely bound carbon dioxide from the aqueous slurry;

(b) adding at least one surface active agent to said first slurry, to provide a second slurry;

(c) heating said second slurry to a temperature of about 125 °C to about 140 °C for a time sufficient for a suspension test to be passed, where the suspension test takes an aliquot of said second slurry, removes the water therefrom to provide about 0.5 to about 0.6 g of dry solid solution in powdered form, combines the dry solid solution with about 100 mL deionized water to provide a suspension, and stirs the suspension vigorously for about five minutes, where the failure of the suspension to exhibit appreciable settling after stirring is completed indicates that the suspension test has been passed.

8. A solid solution according to claim 7 having an infrared spectrum that displays a split absorption band in the region of 1415-1480 cm^{-1} .

9. A solid solution according to claim 7 having a crystallite size in the <003> direction of about 190 Å to about 225 Å.

11. A solid solution according to claim 7, wherein magnesium oxide is the magnesium compound, aluminum hydroxide is the aluminum compound, and a stream of carbon dioxide gas is passed through the second slurry at a rate sufficient to produce the solid solution.

12. A solid solution according to claim 7, wherein said surface active agent is a metal salt of a C₁₀-C₂₂ saturated fatty acid.

13. A solid solution according to claim 7, wherein said surface active agent is selected from the group consisting of the sodium stearate, zinc stearate and calcium stearate.

14. A solid solution according to claim 7, wherein the basic aluminum carbonate gel has an Al_2O_3 content of about 2% to about 20% by weight.

15. A solid solution according to claim 7, wherein said magnesium carbonate has a MgO content of about 40% to about 43.5% by weight.

16. A solid solution according to claim 7, wherein said aqueous slurry is heated for about an hour at a temperature of about 85 °C to about 90 °C for about 1.5 hours to about 2 hours.

17. A solid solution according to claim 7, further comprising the step of removing the water from said second slurry to provide a dry solid solution, and then micronizing

said dry solid solution to provide particles having a particle size distribution wherein at least 99% of the particles are less than 44 microns in diameter, and at least 95% of the particles are less than 10 microns in diameter.

18. A solid solution according to claim 17, wherein the average particle size of the dry solid solution is about 4 microns to about 5 microns and a tap density of about 0.1 g/cc to about 0.3 g/cc for inhibiting the corrosion-causing tendency and coloration of halogen containing olefin polymer and copolymers.

19. A solid solution for inhibiting the corrosion-causing tendency and coloration of halogen containing olefin polymers and copolymers formed by a process comprising the steps of:

(a) heating an aqueous slurry comprising an aluminum compound selected from the group consisting of basic aluminum carbonate gel and aluminum hydroxide, and a magnesium compound selected from the group consisting of basic hydrated magnesium carbonate and magnesium oxide, wherein the molar ratio of magnesium to aluminum is about 1.5 to 2.75, to a temperature of about 70 °C to about 95 °C and for a reaction time "X" to provide a first slurry, where "X" is a period of time sufficient to achieve removal of substantially all free and loosely bound carbon dioxide from the aqueous slurry;

(b) heating said first slurry to a temperature of about 125 °C to about 140 °C for about 1 to about 4 hours.

20. A solid solution according to claim 19, having an IR spectrum which displays a split absorption band in the region of 1415-1480 cm^{-1} and having a crystallite size in the <003> direction of about 190 Å to about 225 Å.